

REMARKS – General

By the above amendment, Applicant has amended the abstract to maintain proper language and format, and to provide more clear description of the disclosure.

Also Applicant has amended the specification to correct for pointed informalities, grammatical errors and inconsistencies as well as to provide proper antecedent basis for the claimed subject matter.

Also Applicant has rewritten all claims in accordance with the suggestions of the Examiner to correct the informalities and to define the invention more particularly and distinctly as to overcome the technical rejections and define the invention patentably over the prior art. The Applicant is grateful to the Examiner for the suggestions in claims refinement.

THE OBJECTION TO THE SPECIFICATION AND THE CLAIMS

The specification was objected to under MPEP § 608.01(o) as failing to provide proper antecedent basis for the claimed subject matter, specifically by not incorporating *“timing of physical connection”* with the specification.

Applicant requests reconsideration and withdrawal of this objection because of the inclusion in the PREFERRED EMBODIMENT section the following description (page 6, between paragraphs 4 and 5): *“The valves 18, 82, 84, 86, 88 must be operated by the mechanisms that provide the necessary timing of physical connection among various chambers during engine operation”*.

THE REJECTION OF CLAIM 1 UNDER 35 U.S.C. 102(B) AS BEING ANTICIPATED BY NOVAS (PATENT No 2,672,282).

Applicant requests reconsideration of this rejection, as now applicable to Claim 6, for the following reasons:

- (1) The invention of Novas relates to a rotary vacuum and compression pump, and makes no claims pertinent to a rotary engine. As such it solves different problem from different technical field.

- (2) The hollow core 3 of the stator 1 in the invention of Novas is not formed by two concentric cylindrical surfaces, which fluently transit one into the other via ramp surfaces, but represents a single cylindrical surface.
- (3) A cylindrical rotor 19 in the invention of Novas has not concentric, but eccentric disposition with respect to the hollow core of the stator 1.

THE REJECTION OF CLAIM 1 UNDER 35 U.S.C. 103(A) AS BEING UNPATENTABLE OVER PERSON ET AL. (PATENT NO 6,766,783), IN VIEW OF GRIMM (PATENT NO 3,568,645).

Applicant requests reconsideration of this rejection, as now applicable to Claim 6, for the following reasons:

- (1) The criteria of obviousness with respect to the rotary engines is generally difficult to deal with, as by definition all such engines must rely upon the stator with close to cylindrical core surface and the rotor, which in many previous arts also has close to cylinder shape, disposed concentrically or eccentrically within the core of the stator. Employment of extendable vanes to achieve fuel compression and accept the force of expanding gasses is also quite common. However, how these parts are combined and act in concert is different. Thus, fine details of each art have to be considered. If prior arts of rotary engines were in fact obvious with respect to their advantages to a person having ordinary skill in the art, they would be implemented by now. Lack of implementation indicates lack of obviousness.
- (2) In addition, the present invention provides new combination of separate parts used in prior-art references.
- (3) Because in Person et al. the compressed fuel in the injection ports 60 becomes redistributed between these ports and the ignition ports 74, the pressure and the amount of fuel in the ignition ports 74 before being ignited will only constitute half of those in the injection ports 60. Another half of the compressed fuel under half of the pressure will remain in the injection ports 60. By still being at elevated pressure, this fuel when expanding into the arcuate compartment zones 34 will leak backward into the inlet ports 35 causing unpredictable malfunction effects. Applicant's art is devoid of such drawbacks. Here all compressed fuel is subject to ignition.
- (4) Although Grimm utilizes "means to radially actuate the vanes", in his art the vanes per se perform different functions to present invention. In Grimm combustion chamber 32 is formed between two vanes 17, therefore, the torque will be created only by the difference of forces

applied to the left and to the right vane, which initially is very small (due small difference in the areas of the vanes exposed to the action of combusted gasses). In the Applicant's invention the full force of expanding gasses is applied to the vane during whole power cycle creating maximal torque.

Person et al. and Grimm do not contain any justification to support combination of all parts in the manner proposed in the present invention. In addition, the present invention overcomes the shortcomings of Person et al. and Grimm stated above.

THE REJECTION OF CLAIMS 2-5 UNDER 35 U.S.C. 103(A) AS BEING UNPATENTABLE OVER PERSON ET AL. (PATENT NO 6,766,783), IN VIEW OF GRIMM (PATENT NO 3,568,645), AND FURTHER IN VIEW OF SCHULZ (PATENT NO 939,751).

Applicant requests reconsideration of this rejection, as now applicable to Claims 7-10, for the following reasons:

- (1) In addition to the arguments stated above in the 1st and 2nd points of the response to Claim 1 rejection under 35 U.S.C. 103(a), which hold true for Claims 2-5 rejection under 35 U.S.C. 103(a) as well, Applicant submits that the disposition of the combustion chamber, working chambers and the valve system in the Schulz's art provides less effective interaction of the combusted gasses with vane-type piston than in the present art. Indeed, the shape of the working chamber 10 in the Schulz's art is such that the part of the piston 11 exposed to the action of combusted gasses is variable resulting in variable torque. This part is minimal at the beginning and at the end of the power cycle, which will result in negligible torque at the respective piston positions. The present invention is devoid of such shortcoming due to the fact that the ramp surface containing power orifice 16 controlled by power valve 18 is made almost parallel to the side surface of the vane. This permits full extension of the vane before ignition of the fuel mixture in the combustion chamber 14 and concomitantly the development of maximal torque from the very beginning of the power cycle. To emphasize this distinct, unobvious feature the SPECIFICATION (page 7, last paragraph (extends to p. 8), line 7, end of sentence) is complemented with the following statement: *"It would be advantages to have ramp surface containing power orifice 16 controlled by power valve 18 maximally parallel to the radial plane (i.e., to the side surface of the piston 32) to permit immediate near full extension of the piston 32*

upon exit from the region underneath the combustion chamber 14 before ignition of the fuel mixture in order to provide near maximal torque right from the beginning of the power cycle."

and Claim 6 (former Claim 1) with the following: *"...wherein ramp surfaces being generally parallel to the radial plain of the stator"*.

- (2) Although separate cavity-like combustion chamber within the stator body has been suggested in Schulz's art and some other prior arts, the prior art references do not contain any suggestion that it may be combined with other engine parts (working chamber, timing valves) in the manner proposed in the present invention.

Important suggestion with respect to the possibility of composite vane-type piston design consisting of independently moving plates has been made in the "CONCLUSION, RAMIFICATIONS, AND SCOPE OF INVENTION" section of the present disclosure. Such piston design would be advantageous in providing better pressurization of the compartments on both sides of the piston and prevention leak of gasses between them. Such piston design has not been proposed in prior art references. The Applicant seeks Examiner's advice whether making claim on such piston design would improve condition for allowance. It is understandable that making such claim would require additional amending specification and drawings.

Conclusion

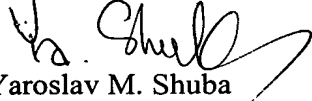
For all of the above reasons, Applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore he submits that this application is now in condition for allowance, which action he respectfully solicits. In view of the advantages over the prior arts stated above the present invention may represent important breakthrough in rotary internal combustion engines design.

Conditional Request for Constructive Assistance

Applicant has amended the specification and claims of this application so that they are proper, definite, and define novel structure, which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests the constructive

assistance and suggestions of the Examiner pursuant to M.P.E.P. § 2173.02 and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,



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Attachment: Appendix to Amendment A with Replacement Paragraphs Marked-Up to Indicate Changes